MediaTech

# MFS-DM2000

Programmable GPI interface
for YAMAHA DM 2000

User manual

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## Features

- MFS-DM2000 is a programmable Fader Start unit & GPI interface for the YAMAHA DM2000.
- 8 isolated output SPDT switches are fully programmable directly from the YAMAHA DM2000 control panel.
- Each switch can be activated by moving any FADER or by pushing the [ON] button on the corresponding channel, or by selected buttons of the YAMAHA DM2000.
- Up to 24 faders or buttons together can be used to activate any of 8 switches.
- Each of 24 faders or buttons can activate up to 8 switches.
- Output switches can be set to permanent mode or pulse mode - generating 100 ms pulse by activating/deactivating.
- Indicators on the front panel display working mode, valid MIDI data, selected memory bank and the activated output.
- The **MFS-DM2000** setup can be saved to 8 memory banks.
- To increase the number of programmable outputs, more **MFS-DM2000** units can be connected to “daisy-chain“.
- Connection to the Yamaha DM 2000 mixing console is through MIDI or RS422.
- Outputs are wired to the connector D 25. Contact rating is 50 V/1 A.
- The unit is mounted in a 19" case with 1U height and powered by external DC12V adaptor.



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## *Warning:*

1. **Placement:**
   Don't place equipment on places with high temperature, humidity, dustiness, vibration, and strong magnetic or electricity field. For example close to heat sources, big transformers, RF transmitting equipment etc.

2. **Avoid strong mechanical shocks**
   Strong shocks can damage equipment.

3. **Do not open, repair or modify equipment**
   There are no user serviceable parts inside. In case of problems, please contact authorized service (Your YAMAHA distributor).

4. **Always switch unit Off before connecting or disconnecting the cables.**

5. **Handle the connection cables carefully**
   When manipulating the cables always grab the connectors, not the cable itself.

6. **Clean the unit using only dry and soft cloth.**
   Don't use any universal solvent.

7. **Always use the right power supply.**
   Compare specification on rear panel of equipment.



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MFS-DM2000 front panel

## *Connecting MFS-DM2000 to YAMAHA DM 2000*

Connect MFS-DM2000 to the mixing console through MIDI from MIDI OUT, or through RS 422 from output TO HOST SERIAL. Maximum length of the cable is 15m for MIDI, and more than 100m for RS 422.
In the case, when you control another devices from mixing console using MMC protocol through MIDI output, it is necessary to use SERIAL (RS422) connection. This restriction is not valid, if MMC is directed to USB or SERIAL.
Another MFS-DM2000 can be connected to MIDI THRU, or SERIAL TO HOST of the last MFS-DM2000. Use the same type of connection for all MFS-DM2000.
There is not possible to combine connection SERIAL and MIDI in the cascade.
**Note:** When using SERIAL connection, MFS-DM2000 is controlled by equal MIDI data carried through RS422.

## *Setting YAMAHA DM 2000*

**For successful using and programming MFS-DM 2000 there is necessary to make following setting on the DM 2000 console:**

- In ***DISPLAY ACCES*** section using the button SETUP select MIDI/HOST page.
- In ***TO HOST SERIAL*** section select PC-2.
- In ***GENERAL*** section set TX PORT to MIDI, or SERIAL, according how MFS-DM 2000 is connected.
- In ***SPECIAL FUNCTIONS*** section redirect STUDIO MANAGER, DAW and PLUG IN to different port, than in ***GENERAL*** section TX PORT is used.
- In ***DISPLAY ACCES*** section on display **PREFER 3** switch OFF function Touch Sense Select. (It is necessary only for programming.)
- With the button MIDI in ***DISPLAY ACCES*** section open the page SETUP.
- In ***TRANSMIT*** section switch PARAMETER CHANGE to ON. CONTROL CHANGE and PROGRAM CHANGE switch to OFF. MIDI channel can be arbitrary.
- Other settings in DISPLAY ACCES section can be arbitrary.


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If setting of the console and connection of MFS DM 2000 is correct, flickering of yellow LED “DATA“ on MFS-DM2000 during moving any fader, show us receiving valid data.

## *Programming*

**Structure of the program.**
8 memories – MEMORY are used for saving and recalling complete program of the MFS DM 2000.
Up to 24 faders or buttons – controllers can be assigned to any output, **but maximum 24 together for each of 8 programs.**
Up to 8 outputs can be assigned to any controller (fader or selected button).

**Selected Buttons are**: Channel ON, all button in section MONITOR (excluding SOLO CLEAR) and the REC button. REC button works only if MFS-DM2000 is connected through SERIAL, and MMC is routed to the SERIAL output too.

1. Before entering PROGRAM MODE, select number of memory using the MEMORY + - buttons on MFS-DM 2000.
   Selected number is indicating by slow flashing OUTPUT LED no. 1 – 8.
2. Enter to PROGRAM MODE by holding (min. 2 seconds) SELECT button on MFS-DM 2000. Active PROGRAM MODE is indicating by red LED named PROG.
3. With the buttons SCENE MEMORY ˆ ˇ on DM 2000 select number of any controller (1-24 which is displayed on SCENE MEMORY display)
4. With the buttons ROUTING 1-8 on DM 2000 select outputs to be activated wih selected controller. Activated outputs are signalling by LED no.1-8 on MFS-DM 2000.
5. Setting of any fader to selected position or by pushing selected button, MIDI data are sent to MFS-DM 2000. If more data, than from one controller are sent, always the last data are saved.
6. To save combination, push the SET button on MFS-DM 2000.
7. With the buttons SCENE MEMORY ˆ ˇ on DM 2000 select number of another from 24 controllers, With the buttons ROUTING 1-8 on DM 2000 select outputs to be activated by selected controller, set controller (fader or selected button) and save combination with the SET button on MFS-DM 2000
8. Repeat until up to 24 controllers are used.
9. To save setting to selected memory leave program mode.

## Leaving program mode

- With holding the button SELECT on MFS-DM 2000 (2 seconds), or after 15 second of idle, setting is saved to the memory, selected before entering program mode.
- MFS-DM 2000 is ready to use.
- To program another memory, repeat steps **1**, to **9**.

***IMPORTANT*: System MIDI is sending data only if some change comes. It means that to record a value of any controller, it is necessary to make change of that controller (fader move or pushing the button).**
***Example: If any fader or button, including ROUTING and SCENE MEMORY was activated during last step of programming (is light ON) it is necessary to send MIDI data again, by setting fader position or pushing buttons again.***

## Recalling memory.

- With the buttons MEMORY + - on MFS-DM 2000 select number of memory to recall.
- Selected number is indicating by slow flashing OUTPUT LED no. 1 – 8.

**Comments:**
To set switching level of the fader to **– ∞**, it is necessary to send MIDI data by moving fader to any position and returning to **– ∞**. This last value is saved, and by exceeding this value corresponding outputs are activated.

Each from 8 outputs can be activated by any fader or selected button.
**Selected Buttons are**: Channel ON, all button in section MONITOR (excluding SOLO CLEAR). The REC button, if MFS-DM2000 is connected through SERIAL and to the SERIAL output are routed both MIDI TX PORT and MMC.


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## *Mode of output switches:*

Output switches can operate in two modes:
**Continuous Mode** – Default mode. Outputs are activated whole time when actuating condition is present
**Pulse Mode** – Using one pair of outputs. First from the pair is activated during 100 ms after reaching activating condition - **Start Pulse.** Second output is activated for 100 ms after resetting condition – **Stop Pulse**.

### Switching from Continuous to Pulse mode

- Hold the SELECT button on MFS-DM 2000 during switch on power, until LED PROG start to flash. Program mode for changing **Continuous** to **Pulse** mode is active.
- With the button SELECT on MFS-DM 2000 select pair of output switches to be changed. Selected pair is indicated by flashing LED on Output 1-8. Non selected LED-s are light on for **Pulse** mode, and dark for **Continuous** mode
- With the button SET, set mode of selected pair. Short flashing of LED represent **Continuous** mode and short turn off represents **Pulse** mode.

## Leaving program mode

- Holding (2 seconds) the button SELECT on MFS-DM 2000, or after 15 second of idle, setting is saved.
- MFS-DM 2000 is ready to use.

**Comment**: Continuous or Pulse mode of each pair is defined for all memories together. Switching between modes deletes previous setting for selected pair of switches.

### Comment for operating MFS DM2000

MIDI data are sent in serial way with fixed and relative small transmitting speed. When transmitting huge amount of data, it can be a certain delay in transmission. DM 2000 is sending data from all assigned channels into Group. Assigning too many channels to one Group demands to transmit high amount of data. If MFS-DM 2000 is improper programmed, it can be unwanted delay in output switches. If channels on DM 2000 are in groups, we recommend to program output switch from channel with lowest number


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before assigning to group, and next assign this channel to the group. Data from this channel are then sent first in the cue. It is also recommended to use low switching levels for faders, to have lowest amount of data in the cue.

**Using Studio Manager software with MFS-DM2000.**

Communication DM 2000 and computer with Studio Manager software represents huge amount of data too. Using MIDI connection to computer can delay output switches on MFS DM 2000. Therefore it is strongly recommended to connect computer through USB port, and MFS-DM 2000 through MIDI, or SERIAL, if MIDI is used for MMC.

Using GPI outputs on the DM 2000 is independent from using MFS-DM 2000

## *Possible problems with MFS-DM2000.*

**Problem:**

| | |
|---|---|
| No LED is light on. | Check if power supply is connected and have right specification. |
| When moving fader on DM 2000, LED DATA is not flashing. | Check DM 2000 and MFS-DM2000 connection. Check DM 2000 setting. |
| MFS-DM2000 is receiving correct data (flashing DATA LED), but output switches are not working correctly. | Check if MFS-DM2000 is correctly programmed, or if right memory on MFS is selected |


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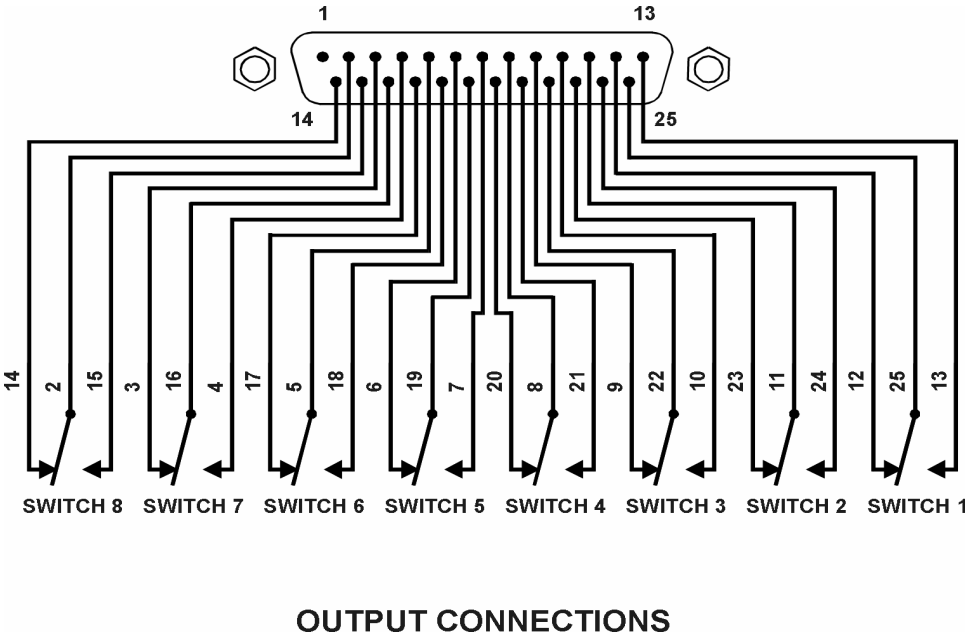
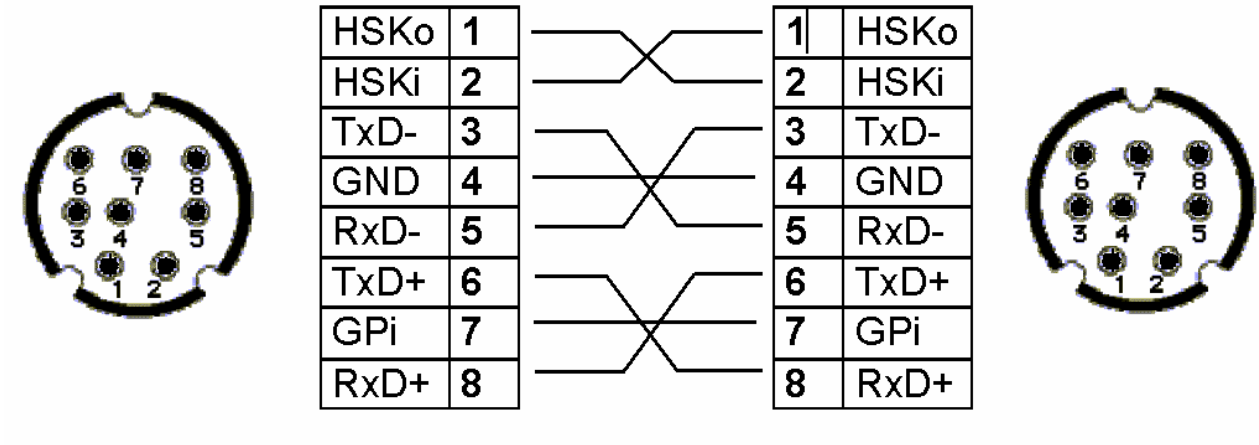
## *Wiring diagram of output connector*


1
13
14
25
14 2 15 3 16 4 17 5 18 6 19 7 20 8 21 9 22 10 23 11 24 12 25 13
SWITCH 8 SWITCH 7 SWITCH 6 SWITCH 5 SWITCH 4 SWITCH 3 SWITCH 2 SWITCH 1
OUTPUT CONNECTIONS

## *Wiring diagram of a MiniDIN 8 cable for SERIAL (RS 422)connection*

View from pin side



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